OCTOBER 1996

COMPUTERWORLD JOURNAL

FINANCIAL SERVICES

FIDELITY'S FANTASIES

Can the leading mutual funds player excel at software sales?

contents

october 1996


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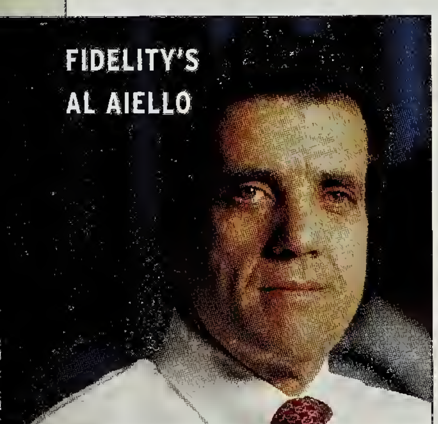
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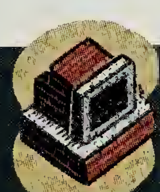

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A REVIEW OF FINANCIAL SERVICES TECHNOLOGY AND BUSINESS HAPPENINGS

Hong Kong Bank Trading in Packets for Frame-Relay Net

Bank aiming to consolidate networks in London, Buffalo and Hong Kong

From Stockholm to Surabaya, Buffalo to Baku, the sun never sets on the Hongkong & Shanghai Banking Corp.'s (HSBC) far-flung, global operations — as long as its networking infrastructure remains up to snuff.

To stay ahead of ever increasing bandwidth demands and emerging multimedia application requirements, the $368 billion in assets bank with 3,000 offices in 72 countries recently began a $30 million-plus project to replace portions of its 13-year-old X.25 packet switch network with frame-relay technology.

This accelerates the bank's goal: to consolidate remaining IBM SNA networks and LANs, which handle everything from corporate cash management to branch and automated teller machine (ATM) transactions spanning its major regional hubs in Hong Kong, London and Buffalo, N.Y., into one network.

Why frame relay? First off, frame relay will provide more than 100 times the capacity of the bank's packet switch network, bank officials estimated. And trendy TCP/IP didn't seem resilient or capable enough to handle HSBC's daily transaction volumes generated by its millions of worldwide accounts. HSBC has 17 million accounts in Hong Kong alone.

Moreover, a recent voice over frame relay contract, placed by Lucent Technologies, Inc. with Hypercom, Inc. in Phoenix, gave HSBC the confidence that it could run telephony over the network as well.

"We wanted to go with technology that is proven to be the most reasonable for multimedia and legacy traffic, and that technology is frame relay," noted Simon Taylor, HSBC's telecoms manager.

Apparently, HSBC is not alone. Though use of frame relay for SNA transport has trailed the overall frame-relay market (IBM only last year completed work on enhancements to its venerable networking scheme to allow such functionality), the movement is beginning to reach critical mass.

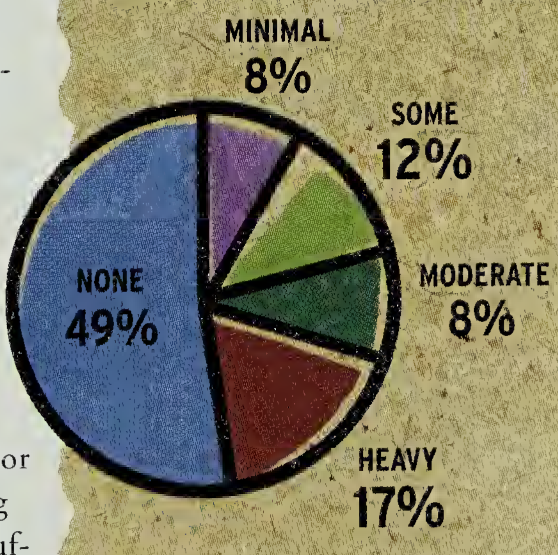
"This year we'll see strong growth in SNA over frame relay," said Tom Nolle, president of CIMI Corp., a networking consultancy in Voorhees, N.J. He added that most IBM mainframe shops — banks included — have taken some time to validate transporting mission-critical SNA traffic over frame relay. HSBC "is still ahead of the midpoint

PLEASE TURN TO NEXT PAGE

NOT FRAMED – YET

Almost half the U.S. mainframe sites surveyed said they don't anticipate using frame-relay technology in the near future

BASE: U.S. SAMPLE OF 223 LARGE/MEDIUM MAINFRAME SITES



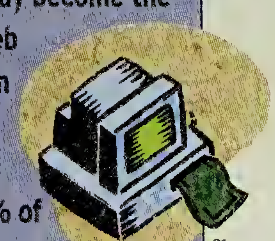
SOURCE: INTERNATIONAL DATA CORP.

unconventional wisdom

VIRTUAL NO MORE
A claim that Security First Network Bank would provide online banking services without a brick and mortar presence was premature. Watch for the bank to open local offices in Atlanta, Boston, Palo Alto, Calif., and other high-tech areas later this year.

EMPLOYMENT SHIFTS
Back-office consolidations and mergers have left many bank IT managers and staffers out on the street, but they're not all going to insurance and securities firms. The Tower Group says over the past two years, the flow of staffers from the banks to their technology vendors has accelerated. Now the vendors employ more staffers than their customers.

INTERNET=ATM
Banking services will drive consumer use of the 'net but not too quickly. A new study of online access activity in France via the Minitel terminal indicates banking may become the most popular Web service. But even after a decade of Minitel availability, only 40% of the market use the Minitel, reflecting ATM's history of use in the U.S.



BECKY HEAVNER

CONTINUED FROM PAGE F5
of the SNA/frame-relay wave," he said.

The bank's decision not to go with TCP/IP was, in retrospect, wise as well. Many organizations that have attempted to convert all traffic to TCP/IP are generally unhappy with the outcome. "Frame relay does what any virtual circuit protocol does: It can combine two protocols on one network without doing so in a physical sense," Nolle explained.

HSBC realized that wholesale replacement of its large global network would take some five years to complete and that its next-generation network would need to last for at least a decade. It therefore sought a vendor it could live with for a while: one that could supply most if not all of its present and future needs, from hubs and routers to switches, and one that understands voice requirements. Hypercom fit the bill.

"After you dance with various candidates, then make a decision, you want to treat them like family because we expect to be deploying Hypercom technology for 10 years," said Julian Grudzien, HSBC's manager of high-bandwidth communications.

HSBC's first target is to upgrade its 400 Hong Kong branches to frame relay. It will then focus on the network backbone and U.S. and Saudia Arabia portions of its Global Data Network, which handles retail systems, ATM and even telex traffic. This first phase includes the support of a multimedia branch intranet terminal application that is

HSBC'S FIRST TARGET *is to upgrade its 400 Hong Kong branches to frame relay.*

expected to be completed later this year. HSBC is also looking to develop a home version of its Hexagon cash management system that would run over the Internet and its new intranet next year, Grudzien said.

The plan is to leverage public frame-relay services in the U.S. and Canada and lease private lines elsewhere, which is still a more cost-effective approach, HSBC officials said.

That's true overseas, where certain geographies have varying levels of frame-relay service concentration, Nolle explained. Carrier service is more cost-effective in the states, however.

"Frame-relay public services are an attractive way to do thin route multiplexing," Nolle said. "A communications network's purpose is to secure bandwidth economies of scale and optimize utilization. Organizations that do their own thick route between sites have their own efficiencies already, but carriers can get better economics than any organization can." ■

– ALAN ALPER

IS BARNETT'S INTERACTIVE TV BANKING TOO LATE?

Barnett and Time Warner have spent the past two years smoothing out kinks

Back in December 1994, Time Warner, Inc. unveiled its Full Service Network (FSN) in Orlando, Fla., to hoopla that spanned the continent. The ultimate in cable television service, including interactive banking with a remote control, was to be offered to 4,000 homes. Barnett Banks, Inc. was the eager financial institution that would provide a direct link between consumer televisions and bank vaults.

Not so fast. It has taken Barnett and Time Warner almost two years to smooth the kinks out of the technology. This month, the bank is finally expected to unveil the TV service, which includes access to account balances, bill payment and funds transfer. And now that the service is ready for prime time, the Internet has grown to be the most likely access point for upscale consumers.

Lee Hanna, Barnett's new chief retail delivery executive, said the bank spent more time to make the application look and sound better, and it considers the project worth the effort. "This is going to allow us to learn quite a bit about interactive cable delivery channels," Hanna said.

Barnett offers customers banking access from their TVs, according to Lee Hanna

Barnett's screen debut features a mock Barnett Town with its own Barnett Banks branch, where customers can "walk" in and conduct transactions. They can even visit a teller for help. The service's three-dimensional layout and choice of tellers was an added challenge for FSN. Robert Montgomery, Time Warner Cable's senior director of business applications, noted that it added another level of engineering to those required by other content providers.

Meanwhile, Hanna said Barnett's other initiatives in alternative deliveries, including Internet access via a Web site, private network access via PCs and telephone banking, are right on track. The interactive TV investment may yet yield a return because a large portion of the bank's customer base is not surfing the 'net. ■

– JULIE MONAHAN

DAVID WAUGH

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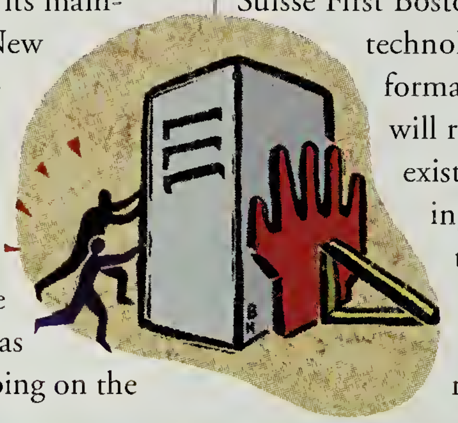
Credit Suisse First Boston Flip-Flops on Client/Server

New tech team to weigh platform needs across units

Never has the phrase "conservative Swiss banker" been more redundant than when it is used to describe the slow technological evolution occurring at Credit Suisse First Boston. While the rest of the financial world is rapidly implementing the client/server architecture as the foundation for new applications as well as a replacement for existing systems, Credit Suisse First Boston is moving at a more glacial pace.

As a result of a huge consolidation of large operating units of Credit Suisse and CS First Boston in the U.S., England, Germany, Switzerland and elsewhere, Credit Suisse First Boston needs an integrated and global trade processing system. Indeed, one of its units, CS First Boston, has needed a replacement for its mainframe-based New Trade Processing Architecture (NTPA) system for several years.

However, the organization has been flip-flopping on the architecture since the early 1990s. Several years ago, CS First Boston announced it would port NTPA to client/server. Then earlier this year, Credit Suisse First Boston said it would stick with the NTPA.



BECKY HEAVNER

Recently, Frank Fanzilli, the new global head of information services at Credit Suisse First Boston, said a technology transformation team will review each existing operating unit's technological needs, current methodologies and staffing to determine the appropriate platform. Fanzilli had been managing director of information systems at the finance unit of CS First Boston. He said the team will implement a global trade processing system for Credit Suisse First Boston by mid-1998.

Although he was unwilling to publicly speculate on which architecture might be chosen, Fanzilli appears to be leaning away from big iron: "It has always been my belief that the gains of maintaining an open, standardized platform far outweigh" the disadvantages, he said.

Fanzilli also indicated that more than one standard may be selected. ■

– LARRY MARION AND TERESA YRASTORZA

READY FOR A WHOPPING WAREHOUSE?

Now that most large banks already have a data warehouse to measure profitability and manage risk, watch for a major expansion of revenue enhancement projects, according to a new report by The Tower Group, a financial services industry consulting firm in Wellesley, Mass.

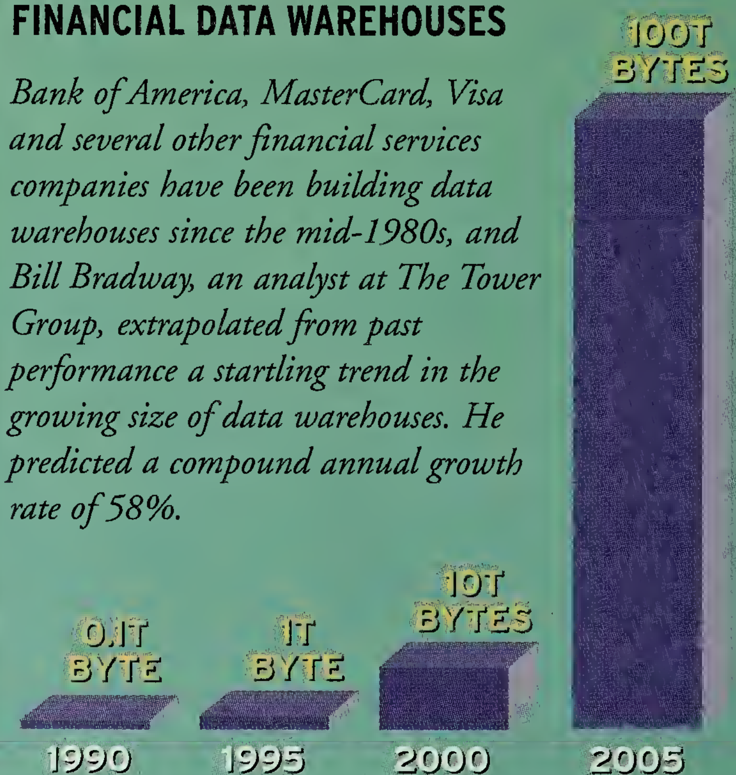
Increased investment in data mining tools and data marts is expected to aid retail bankers in spotting new opportunities in credit cards and other consumer products. That belief will drive financial services industry spending on data warehouses to exceed $5 billion by 1999, a 26% compound annual growth rate from 1995, according to analyst Bill Bradway.

Analyzing potential retail customers will propel a huge increase in the size of data warehouses, Bradway added. Banks will mine internal credit-card data that has been integrated with external lifestyle information (magazine subscription lists, real estate files, U.S. Census Bureau records) to predict and model future customer needs. MasterCard International, Inc. and The Chase Manhattan Bank N.A. are likely to be at the forefront of these efforts. Bradway reported that MasterCard's warehouse already has 2T bytes of information and will soon hit 20T bytes. ■

– LARRY MARION

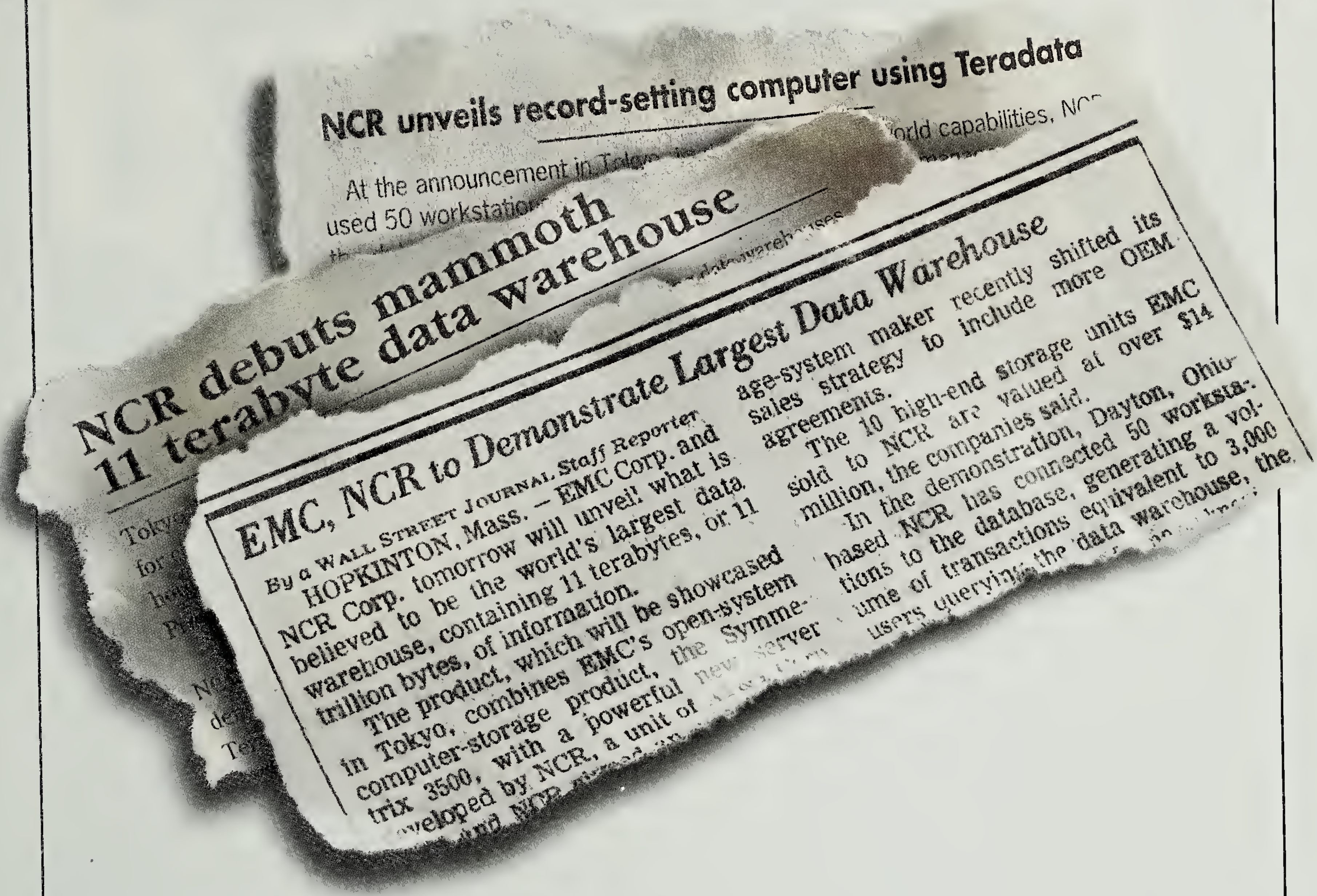
EXPONENTIAL GROWTH FOR FINANCIAL DATA WAREHOUSES

Bank of America, MasterCard, Visa and several other financial services companies have been building data warehouses since the mid-1980s, and Bill Bradway, an analyst at The Tower Group, extrapolated from past performance a startling trend in the growing size of data warehouses. He predicted a compound annual growth rate of 58%.



SOURCE: THE TOWER GROUP

The NCR Scalable Data Warehouse.



NCR unveils record-setting computer using Teradata

At the announcement in Tokyo ... used 50 workstation...

NCR debuts mammoth 11 terabyte data warehouse

EMC, NCR to Demonstrate Largest Data Warehouse

By a WALL STREET JOURNAL Staff Reporter

HOPKINTON, Mass. — EMC Corp. and NCR Corp. tomorrow will unveil what is believed to be the world's largest data warehouse, containing 11 terabytes, or 11 trillion bytes, of information.

The product, which will be showcased in Tokyo, combines EMC's open-system computer-storage product, the Symmetrix 3500, with a powerful new server developed by NCR, a unit of ...

...age-system maker recently shifted its sales strategy to include more OEM agreements.

The 10 high-end storage units EMC sold to NCR are valued at over $14 million, the companies said.

In the demonstration, Dayton, Ohio-based NCR has connected 50 workstations to the database, generating a volume of transactions equivalent to 3,000 users querying the data warehouse, the...

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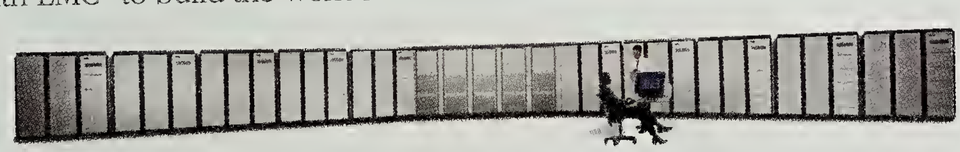

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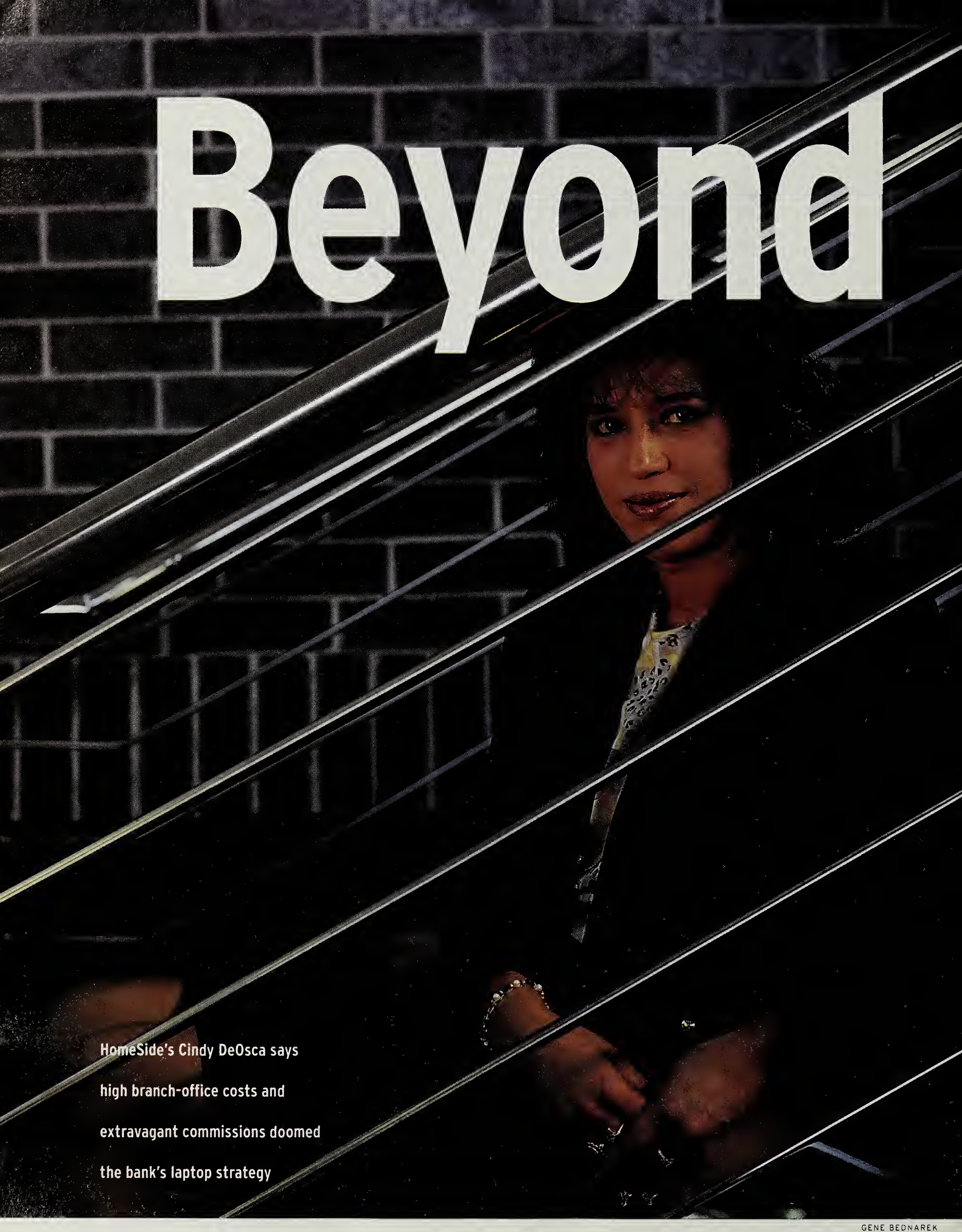
Beyond



HomeSide's Cindy DeOsca says high branch-office costs and extravagant commissions doomed the bank's laptop strategy

GENE BEDNAREK

Laptops

Fielding a sales force with laptop computers to capture and process mortgages is not the most cost-effective approach, contends industry leader HomeSide Lending

By Mark Halper

TWO YEARS AGO, BancBoston Mortgage Corp. in Jacksonville, Fla., was blazing a laptop technology trail in the mortgage industry. Some 230 branch-based loan officers, armed with DRAMs on the run, processed loan applications from real estate agents' offices, borrowers' homes and other customer-convenient locations. It worked.

"It has been a steady, growing player for years," said Barbara Smiley, a mortgage industry specialist at The Tower Group in Wellesley, Mass. "You don't stay in this business unless you're solid."

But a change in ownership and strategy led the mortgage originator to blaze a new technology trail. BancBoston, now known as HomeSide Lending, Inc. after a merger and a change in ownership, eliminated those mobile computers in March. In their place, 27 desktop PCs sit at company headquarters, staffed by salaried sales agents processing loan applications submitted via telephone.

HomeSide's dramatic mortgage technology shift from the peripatetic to the desk-bound came about through no fault of the laptop technology. Rather, the flashy laptop operations fell victim to a restructuring that eliminated branch banking in favor of less costly, centralized, phone-based operations. Because the loan officers and their laptops worked out of branch banks, this shift spelled the end of the system. Further, HomeSide decided to emphasize secondary mortgage products such as home equity loans and lines of credit rather than mortgage originations.

To observers of the mortgage industry, HomeSide's rebuke of portable, face-to-face computing may seem odd. After all, the trend in mortgage lending, which HomeSide helped set, is to make it quick and easy for borrowers to file a loan application and then receive an answer. Mortgage banks and brokers like HomeSide have over the past decade pummeled thrifts and commercial banks in the origination market because they have more aggressively marketed their products, noted Jim Moore, chief executive officer of Mentis Corp., a Durham, N.C.-based bank consulting and research firm.

In fact, Moore added, borrowers are more likely to agree to higher interest rates and more rigorous terms in exchange for speedy approvals. "That's why banks are incented to move mortgage acquisition to the furthest point in the process," he said. The furthest point, typically, has been in the real estate agent's office, where a bank loan officer starts the application using a laptop.

Laptops, Smiley agreed, support the kind of "high touch" sales necessary to win customers in a highly competitive market where rates fluctuate. With laptops, loan officers

Please turn to next page

Inside HomeSide's Telemarketing Strategy

Instead of 230 field salespeople with laptops, 27 telemarketers generated $5.2 billion in loan originations in the first six months of 1996. Here's a look at their tools:

MORTGAGE ORIGINATION SOFTWARE
- DynaTek

UNDERWRITING SOFTWARE
- PMIAura

LOAN SERVICING SYSTEM
- Alltell

DESKTOP PCs
- Pentium-based

EDI LINKS
- Developed internally

SOURCE: HOMESIDE LENDING, INC.

Continued from page F11
can meet customers face-to-face.

John Reed, HomeSide's first vice president of strategic planning and marketing, agreed laptops can be a plus in a competitive market. But equipping a field sales force in branch offices with laptops "was horribly unprofitable," he acknowledged.

Two cost components led to the demise of the laptop strategy: buildings and people. In an increasingly competitive environment, banks are less able to carry what Reed called the "brick and mortar costs" of running branches. "We found that the infrastructure was just not profitable," Reed explained. Field offices, he said, are appropriate for "lean and mean" operations in the mortgage business such as mortgage brokers. The more elegant high-traffic offices typical of a bank were a financial burden.

And of course there are salary issues. The 230 commissioned loan officers "were compensated much more highly than the 27 salaried telemarketers," noted Cindy DeOsca, vice president of retail underwriting.

In the current level of mortgage competition, the laptop-based strategy may be an expensive anachronism. "The laptops represented an enabling technology, but it was what's on the laptop that was important," Reed said, referring to the loan application software that ran on the 230 laptops. HomeSide still uses the software from DynaTek, Inc. to set the loan application in motion. But DynaTek screens are now viewed and manipulated by the telephone clerks.

The strategy and technology shift hasn't hurt HomeSide. Indeed, Bethesda, Md.-based newsletter "Inside Mortgage Finance" said HomeSide increased its share of the market, though some of the gains were due to a merger. It was the eleventh-largest U.S. mortgage originator in the first half of 1996, with $5.22 billion in originations, up from 22nd place a year earlier. It ranked seventh in servicing with its $77.68 billion portfolio earlier this year, up from 16th place.

HomeSide still has technological challenges in its mortgage operations, though: It must maintain or improve its performance while maintaining profitability. Accelerating the data gathering process is key.

According to DeOsca, HomeSide is developing electronic links to fetch employment verification from a borrower's employer. This will reduce the weeks it can take to request and receive written verification.

HomeSide is also developing electronic data interchange (EDI) links to two appraisal firms to speed the gathering of property value data. And on the horizon are EDI links with mortgage insurance companies.

"The whole idea is to not have a bunch of people running to the fax machine or checking Federal Express and using all the things we've been using," DeOsca said.

Tweaking PMIAura, the underwriting software from PMI Mortgage Insurance Co. in Fairfax, Va., is also important to hasten the process. Underwriting software weighs the input it receives from the application and considers credit history and other variables to determine the credit-worthiness of a customer. DeOsca praised its performance but said she wished for easier administration functions. If an underwriter wanted to change some analysis rules in the program, for instance, he might have a difficult time. While the need to change the rules does not occur frequently, when it does, "there's no reason why the end user should not be able to do that," said DeOsca, noting that rule writing presently has very little point-and-click prompts but plenty of confusing text procedures. "Right now, my system administrator and I do all the rule writing," she added. The underwriting system has become so important to the process that DeOsca has made it a priority to learn the technology and has appointed one of her underwriters as the full-time systems administrator. PMI said a Windows version of PMIAura released earlier this year eliminated the shortcomings of the DOS version that HomeSide used.

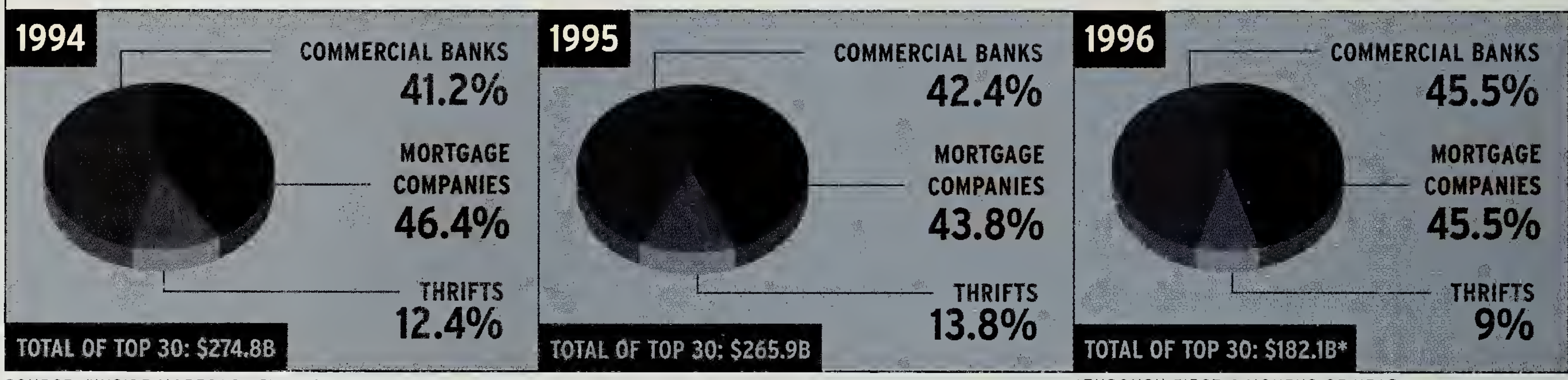
HomeSide's modifications to the underwriting software are in keeping with what John Lewis, managing editor of "Inside Mortgage Finance," said is a trend among mortgage lenders to automate application analysis "to the point where there is very little human involvement."

Meanwhile, with the elimination of loan officers, all this technology will have little to do if HomeSide's marketing efforts do not trigger calls from prospective borrowers. DeOsca said HomeSide has a four-pronged marketing initiative to generate leads. It is developing systems to retain customers who are refinancing. It's also establishing itself with "affinity" groups that send members or employers to the mortgage company. In addition, HomeSide has "co-branding" deals, such as a recent one in which borrowers earn frequent-flier miles with American Airlines. Further, HomeSide is developing alliances with other companies willing to share customer databases.

That presents yet another technological challenge. Like other forward-moving financial institutions, HomeSide is relying more on slick marketing. While DeOsca and her underwriters work their systems, the heat will be on the marketing department to support its own operations with suitable, trend-spotting databases. ■

Brokers Fend off the S&Ls and Banks

Aggressive sales campaigns, fast application reviews and other tactics enabled mortgage companies to maintain their share of mortgage originations



SOURCE: "INSIDE MORTGAGE FINANCE"

*THROUGH FIRST 6 MONTHS OF YEAR

HALPER IS A SAN FRANCISCO-BASED WRITER.

Aiello's new *Gambit*

HIGH-PROFILE IT PROJECTS HAVE FOUNDERED AT FIDELITY INVESTMENTS. MEANWHILE, CIO AL AIELLO IS SELLING TECHNOLOGY TO BANKS. IS THERE A CONNECTION?

BY ANN MONROE

Mark Wildermuth wasn't expecting trouble in June when he made a sales call on a regional broker dealer. Wildermuth, a senior vice president at Fidelity Investments' Brokerage Technologies unit, is responsible for marketing the company's new Maxxess real-time financial market information tool to other financial services companies.

But when he walked in, Wildermuth recalled, the customer slammed that day's *Wall Street Journal* onto the desk in front of him. It had a major story about Fidelity's problems with Project Jamaica, its long-overdue online customer trading system. The headline: "How Fidelity Stumbled in Effort to Develop Consumer Software."

"How do I know," the customer asked, "that Maxxess isn't another Jamaica?"

Fidelity, long envied for its emphasis on technology, has decided to profit on that reputation by selling some of its tools and applications to competitors. But its timing is awkward, to say the least. The gigantic investment firm, whose every stumble hits the front pages, has been in the news a lot lately. Lousy mutual fund performance has cost Fidelity about $30 million in revenue, as more than $5 billion has been transferred out of its Magellan fund over the past year.

And though its technology problems haven't yet had an appreciable impact on Fidelity's growth, they've been embarrassing. Jamaica's delays, for example, meant Fidelity was beaten to the punch by rival Charles Schwab & Co., which introduced its own system last March.

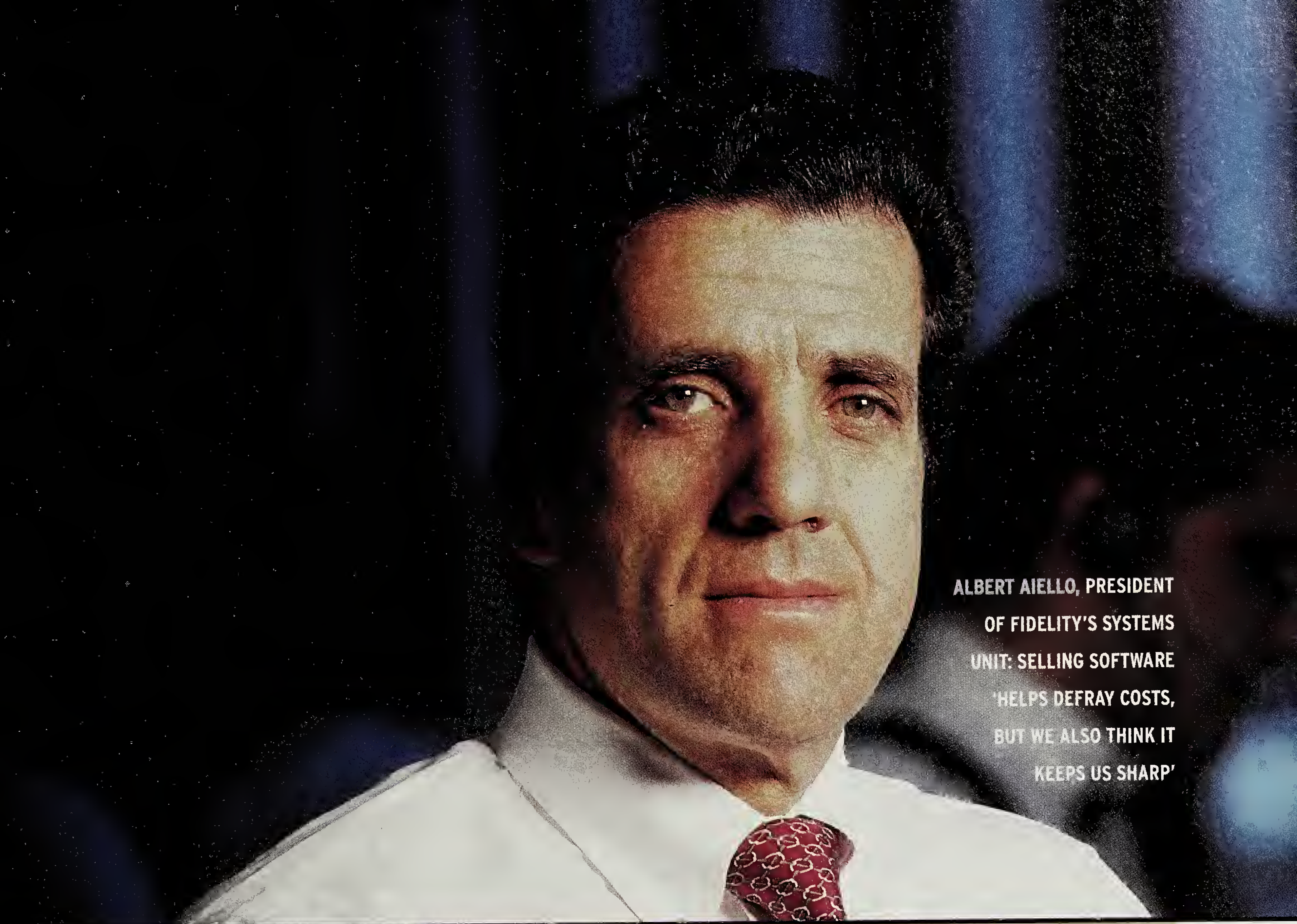
Jamaica's problems, as well as other software delays, have put the leading mutual fund company in the uncomfortable role of technological follower instead of the leader it prides itself on being. Schwab introduced Windows-based online trading software called Street Smart several years ago, while Fidelity's customers are still waiting. Schwab customers have been accessing their accounts over the Internet for six months; Fidelity hasn't yet introduced a product. Schwab has been offering automatic dividend reinvestment to its customers for a year, while Fidelity introduced it a few months ago, almost a year after it was announced. And Project Vantage, a $100 million effort to rebuild its mutual fund and brokerage technology infrastructure, has ballooned into a $250 million monster, consultants and former Fidelity employees say.

To catch rivals and improve investment performance, Fidelity plans to spend a staggering $400 million a year on technology in the next few years. Last year, it spent $350 million, or 8% of its $4.3 billion in revenue. Counting capital expenditures, this year's information technology costs could total $500 million, company officials said. Selling software isn't going to make a big dent in that budget, but it will help.

Fidelity officials argue that the company is on the verge of taking the technology lead again. In a rare interview, technology czar Albert Aiello said Jamaica, now due this fall, will be "significantly better than anything else on the market." But he conceded that the company made a mistake putting all its eggs in the Jamaica basket. "In hindsight," he said, "maybe we should have kept working on Jamaica and at the same time imported what we had into Windows. But people would have said it's a yawn." As for Project Vantage, he insisted critics are wrong. Vantage is more of a department than a discrete project, he claimed, and its increased budget indicates growth, not overruns.

But while Aiello is adamant that Fidelity is not as far behind its rivals as it appears,

FIDELITY INVESTMENTS MANAGES MORE THAN $400 BILLION IN ASSETS . . . REVENUE WAS $4.



ALBERT AIELLO, PRESIDENT OF FIDELITY'S SYSTEMS UNIT: SELLING SOFTWARE 'HELPS DEFRAY COSTS, BUT WE ALSO THINK IT KEEPS US SHARP'

SETH RESNICK

he conceded that amortizing cost overruns and improving its internal skills are key reasons behind the entrance into the software business. Selling software "helps defray costs," he said, "but we also think it keeps us sharp. Building for the commercial market helps us keep our technological edge."

Keeping a technological edge is more than just a cliche at Fidelity. From chairman and Chief Executive Officer Edward C. Johnson III on down, the company's resolve is to be the best. And until recently, being the best has meant building it themselves. Combined with Fidelity's determined decentralization, including decentralization of IT development and management, this approach has had a lot to do with the technology delays. However, part of the culture is beginning to change, insiders say — increasingly, Fidelity is going outside the company for its technological solutions.

Please turn to next page

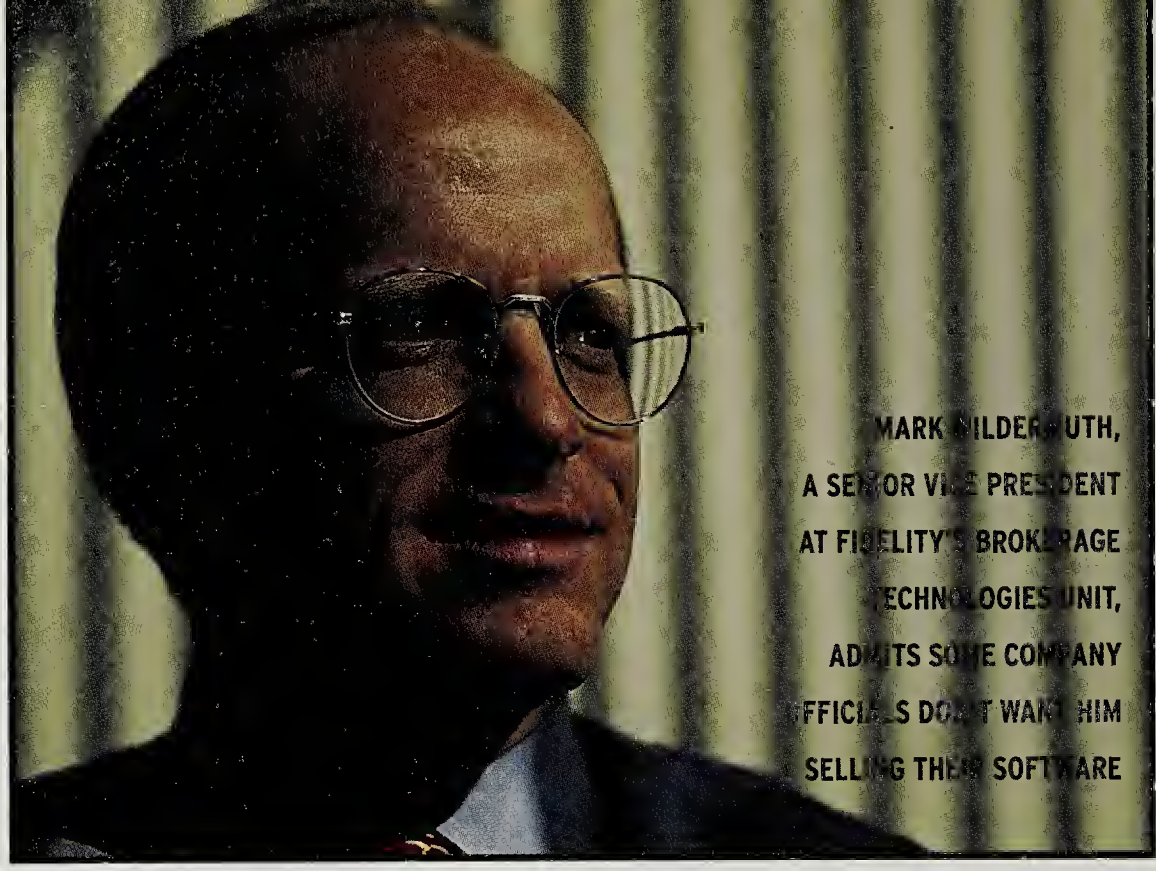
Tough Times At 82 Devonshire

Fidelity has suffered a series of technology-related snafus that have marred its otherwise heady reputation as a pioneer. Here's a sampler of its recent IT woes:

PROJECT	WHAT IT WAS SUPPOSED TO DO	STATUS
JAMAICA	Consumer money management, online trading	Fourth-quarter shipment promised after three years of development and delays
VANTAGE	New mutual fund and brokerage infrastructure	Partially completed after spending $250 million over eight years
DRP	Automated dividend reinvestment program	Delivered in mid-1996, almost a year after announcement
INTERNET	Web access to accounts, transactions	Fourth-quarter 1996, six months after rival Schwab offered access

SOURCE: FINANCIAL SERVICES JOURNAL

ILLION IN 1995, WITH NET INCOME OF $435 MILLION . . . HAS MORE THAN 28 MILLION ACCOUNTS



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MARK WILDERMUTH, A SENIOR VICE PRESIDENT AT FIDELITY'S BROKERAGE TECHNOLOGIES UNIT, ADMITS SOME COMPANY OFFICIALS DON'T WANT HIM SELLING THEIR SOFTWARE

Continued from page F15

"There are certain core systems that you want to be the owner and builder of," Aiello said. "But once you get beyond that, anything goes. We've bought several systems that we've used as initial building blocks. It gets you into the business fast." Still, Fidelity remains proudly perfectionist in its technology approach. Defending that stance, Aiello pointed to the havoc caused by America Online's system failure in August.

"Systems failure is something Fidelity is very anxious to avoid," said Phil Lawrence, an Ernst & Young partner and director of its financial services consulting group in Boston. "The firm is very conscious of the fact that it has this tremendous reputation for quality." While Schwab is not unconcerned about quality, "it has a very different premise: It also wants something that's easy and cheap."

Aiello added, "We're very meticulous. For us, it's not a matter of just putting it out there and then we'll fix it."

Indeed, Aiello insisted that what look to outsiders like delays and runaway projects aren't troubling the company. Fidelity is moving at exactly the speed it wants to on the technology front, he contended. "It's like an iceberg," he said. "You may see a point that looks like a weakness, but there's a lot happening underneath." So while Fidelity may look like a sleeping giant on the Internet, Aiello insisted the lag is deliberate. Where rivals use de facto security techniques, Fidelity's determined to be gold-plated.

"I think I know more about Internet security than anyone," Aiello said, "but somebody who's not in on those discussions could be drawn to the misleading conclusion that we're behind. A year from now, you'll see that we've been out front all along, not running harder to catch up."

The same determination marks Fidelity's move into technology sales. It is buying outside products and services. Earlier this year, it made two deals. First, it bought the trust processing business of Broadway & Seymour, Inc. A few months ago, Fidelity bought a software developer, Argent Investment Services, and plans to sell its products beginning with Sovereign, portfolio management and analysis software.

An internal repackaging effort is considerable as well. A committee Aiello heads is cataloging the company's technology products to see which might be marketable. At the same time, Fidelity Investments Technology President Paul Cirillo is asking institutions what products they need and then looking for them within Fidelity's diversified and far-flung organization.

"We're going about this in typical Fidelity fashion," Cirillo said of the apparent overlap. "We don't carve out a territory and say it belongs to one person. We let lots of people go out after it." At least four Fidelity units are in the technology market: Aiello's, Cirillo's, Wildermuth's and the Fidelity Capital Software Group (see product table page F19). Decentralized IT development may yield the best solution in the long run for crucial internal projects, but most commercial developers can't afford such an approach. They don't have the deep talent pool or the financial wherewithal to fund duplicate efforts. And they couldn't price their products at a level that would make a profit. For Fidelity, though, the profit question is less urgent; these products have already been developed for its own use, so any sales proceeds are found money. The real test will come when the company gets into the costly business of supporting and upgrading products it's already sold.

OBSTACLES GALORE

Fidelity faces other challenges in the commercial market. Business unit managers who had funded development of crucial technology have to be sold on letting their competitors buy it. And customers want to be reassured that they will get complete documentation, out-of-the-box quality, priority support and frequent release updates.

These issues have tripped up the sales efforts of other large financial services firms, including Citicorp, Morgan Stanley, Merrill Lynch and Drexel Burnham, which launched commercial software efforts in the last decade either alone or with a technology partner. Missing documentation, an aged product out of step with technology trends or support conflicts downed them all.

So far, Fidelity is actively selling just three products, so it's early to say whether this new venture will succeed. The company's best-established and most broadly distributed product is Maxxess, a software package for trader workstations that competes directly with ADP, ILX and other real-time information services, providing pricing on equities, commodity futures and listed fixed-income securities to the equity market. Aiello said the system has been installed on 1,500 workstations outside Fidelity as well as 4,000 within. Most of those outside terminals belong to Fidelity clients, though; the company began selling the product to nonclients only at the beginning of the year.

The system is state of the art, said Gary Maradik, a vice president at Milwaukee-based Firstar Corp.'s Firstar Information

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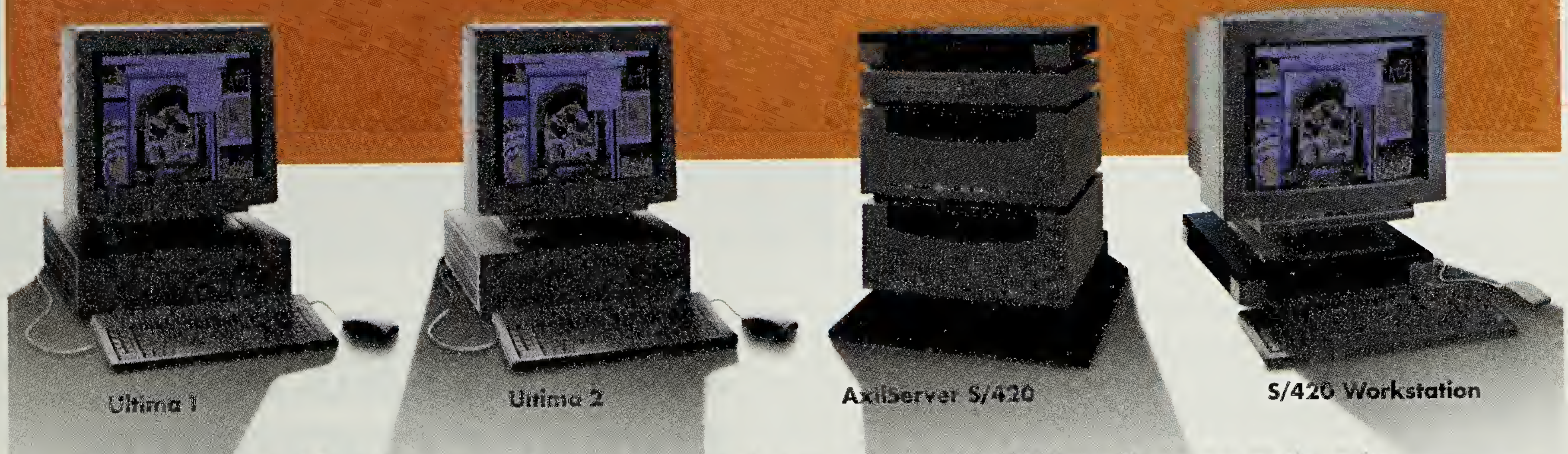

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Services subsidiary, a small money management firm. "We had had AT Financial, which is supposed to do the same thing, but we wanted to put the information out across our network, and Maxxess was the most efficient way to do it," he said.

Some people at Fidelity question whether the company should be selling such sophisticated systems to rivals — even small rivals such as Firstar, whose $20 billion in assets is dwarfed by Fidelity's $400 billion. "Certain camps internally want us to keep it to ourselves," Wildermuth conceded. But he said keeping it in-house is a sure way to fall behind. "When you use a system heavily internally, you're tempted just to believe your own stuff about it. We couldn't keep it competitive if we stayed focused in-house."

The debate about selling the jewels of Fidelity's IT crown has extended beyond Maxxess, according to Aiello, who puts an end to arguments with a homely but well-honed analogy. "The question," he said, "is whether it's the hammer or the carpenter that makes a good door frame. Many of us believe it's the carpenter. And if that's the case, then we can sell all the hammers we want."

Fidelity's Product Portfolio

Fidelity has a variety of software packages and technology-based services geared for sale. Most of the products were developed internally, though a few have been purchased from commercial vendors. Here's a sampler:

PRODUCT/SERVICE NAME(S)	FEATURES	ORIGIN AND SPONSOR
AMTRUST, AMPREFERRED, ASSETMANAGER, TRUSTPROCESSOR	Trust accounting software and services for banks	Acquired from Broadway & Seymour earlier this year by Capital Software unit
SOVEREIGN	Portfolio analysis and management for money managers	Purchased in mid-1996 from Argent Investment Services by Capital Software unit
OPSERVER	Multiplatform (MVS, Unix, NT, TCP/IP) print spooler	Fidelity developed this for its massive printing operations; sold by the Systems unit
MAXXNET	Intranet-based data service for remote users	Internal development for traveling Fidelity staff; sold by Brokerage Technologies unit
CORPORATE ACTIONS POLESTAR	Corporate actions product	Developed internally; sold by Fidelity Investments Technology
MAXXESS	Various financial databases bundled into Windows client	Internal development for Fidelity sales force; sold by Brokerage Technologies unit

SOURCE: FIDELITY INVESTMENTS

Another product Fidelity markets is OpServer, which lets high-speed printers work with a variety of operating system environments. OpServer logged its first sale in August. Greg Horgan, who was brought in as vice president of sales and marketing at Fidelity's Systems unit to sell the product, said Fidelity built OpServer because the firm needed it and nobody else offered a print driver and spooler that interconnected to a variety of hardware and software platforms. "We put out requests for proposals, and all the major players came back to us saying they could do it in six months," he said. "That was in 1991." Finally, Fidelity produced its own solution.

Meanwhile, its giant new printing center in Covington, Ky., has 14 high-speed printers and five different systems feeding into them. Since it works in Covington, Horgan claimed, "We can make it work anywhere." Key parts of the OpServer sales pitch will be repeated for other Fidelity products. Fidelity's argument is that its own size and diversified nature make it an ideal testing ground for other companies.

However, some bankers wonder whether they should become a customer of a company that has pulled hundreds of billions of dollars out of their industry. "The fact that they're a competitor does bother some people here," Firstar's Maradik said.

That didn't stop Maradik, and it doesn't stop most folks, Cirillo said: "It hasn't inhibited me. Only in a limited number of circumstances is it an obstacle that can't be overcome, and Fidelity's a terrific door opener."

Many prospective buyers also wonder whether Fidelity is serious about being a reliable software provider or just indulging some vague idea of amortizing project overruns. Horgan said he had his own questions about Fidelity's commitment to the business when he was approached for his current job and that he has to "work hard" to convince customers Fidelity is committed.

Fidelity's long-term ability to do that has yet to be tested. But it is finding customers willing to try its products. Despite his worries about Jamaica, Wildermuth's skeptical customer is trying Maxxess. ■

MONROE IS A FREELANCE WRITER IN NEW YORK.

SYSTEMS . . . MORE THAN TWICE THE ASSETS UNDER MANAGEMENT OF ITS CLOSEST COMPETITOR . .

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CAN CONSORTIAWARE SAVE THE BANKS?

BY JULIE MONAHAN

HUNTINGTON'S CARY SERIF: 'WE'RE VERY CONCERNED ABOUT THE ERODING MARKET SHARE OF BANKS'

TED RICE

THREE YEARS AFTER LEADING BANKS BANDED TOGETHER TO DETERMINE STANDARDS FOR ELECTRONIC PAYMENT PRODUCTS AND SERVICES, PROGRESS IS A MIXED BAG

If a camel is the product of a horse designed by a committee, would a bowl of spaghetti be the result of a consortium deciding the structure of the payment mechanisms of the next century?

After three years of working together, some of the best and the brightest bank technologists have a decidedly mixed bag of accomplishments, near misses and gaps to show for their efforts to create the standards that will direct tomorrow's electronic payments. Several projects have advanced to the point where new standards have been proposed, but some of the key electronic commerce initiatives have been either severely downsized or abandoned.

Even some of the Financial Services Technology Consortium (FSTC) members — including 17 bank representatives and about 75 other financial technology players such as vendors, trade associations and consultants — are concerned that the group's drive for collaboration and its methodical approach may have slowed its progress.

"Standards are one of the thorniest issues moving forward into the information age," explained Jim Moore, president of information technology research firm Mentis Corp. in Durham, N.C., and a member of the FSTC. He cautioned that standards are adopted only through the forces of the market or by government edict, not by committee. Nevertheless, Moore said, the FSTC has an important role to play: "It's a good organization that's doing something positive and filling a gap that needs to be filled. FSTC has the right membership and the right players."

Kevin Curtis, a senior analyst at the Yankee Group in Boston, said the FSTC "is doing pretty well, considering the challenges it faces." (Visit the FSTC World Wide Web site, www.fstc.org, for a list of members and other background material, including telephone numbers of key leaders.)

The FSTC established an ambitious goal: to ensure a dominant role for banks in the electronic payments marketplace. Considering the growing interest and activity in electronic commerce provided by nonbanks — already, almost half of credit-card transactions are processed by nonbanks, according

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to McKinsey & Co. studies — the FSTC has a daunting task. And the stakes are huge.

"We're very concerned about the eroding market share of banks," said Cary Serif, vice president of advanced technologies at Huntington Bancshares in Columbus, Ohio. Huntington is one of the FSTC's founding members, a list that also includes Bank of America, Bank of Boston, Citibank, Chase Manhattan Bank, Barnett Banks and NationsBank. "This effort makes banks more competitive and allows us to share the risks and rewards of the advanced technologies in financial services," Serif added. "We saw that as being critical to the banking industry's continuing to thrive in the future."

With about $10 million in cash or in-kind commitments it has collected from members, Fidelity has hired a Chicago-based consulting firm to manage the organization and fund four major initiatives. It has launched projects to develop standards for a new electronic payment tool called an electronic check, check imaging, an Internet payment system and network fraud detection and prevention. The FSTC began each project by signing up interested members, which must then ante up the money necessary to fund it. Entry to the check imaging project, for example, was $250,000, which could be paid either in cash or with an equivalent donation in the form of equipment or the time of a knowledgeable executive.

The electronic check and check imaging projects have shown the most progress. To fulfill the promise of computer and communications technologies reducing the costs of writing, accepting and processing checks, the electronic check is the best way to eliminate its paper equivalent, according to the FSTC. The electronic check's proof of concept was conducted last year between Bank of Boston and Chemical Bank, involving a purchase from PC Flowers & Gifts, an Internet service (www.pcflowers.com). Next is a pilot by year's end and a move to production among a group of banks and consumers next year.

The electronic check is initiated from a smart card "checkbook" that provides the digital signature and all the customary information of a typical check. It can be used with PCs, screen phones or automated teller machines. The check is then delivered by direct transmission, electronic mail or existing bank systems such as an automated clearinghouse. The smart card provides one level of security for the electronic check because it does not reside in the network and resident information cannot be accessed at whim electronically. Another level comes from the use of public key cryptography, which encrypts the digital signature. This cryptography also allows any authorized party in the transaction, from merchant to bank, to authenticate the check.

For now, the electronic check is awaiting the standardization of its technological syntax from the American National Standards Institute, according to John Doggett, the project's director and also a director of applied technology at Bank of Boston. Furthermore, it is undergoing the scrutiny of market research and focus groups from among large and small businesses and individual, Internet-savvy users, providers and retailers. "It's important for banks to understand where the value is for all the parties and make sure they get it," Doggett noted. "If they don't get it, they won't use it."

UP FOR GRABS

Banks may still dominate traditional check processing, but they are threatened by the growing crowd of nonbank companies providing electronic payment services. Nonbanks already process 43% of credit-card transactions, according to McKinsey & Co.

PERCENT OF FUTURE ONLINE PAYMENT VOLUMES	
BANKS' 'NATURAL' SHARE	20% TO 30%
NONBANKS' 'NATURAL' SHARE	10% TO 15%
SHARE UP FOR GRABS	55% TO 70%

SOURCE: MCKINSEY & CO.

Check imaging has also run through a series of concept proofs, starting in December 1995. Under the experimental system, a digitized image of a check is created by the payee's bank at the time of deposit. The image, not the paper, then makes its way through the bank payment system. The project, under the direction of William J. Krajewski, a Citibank vice president, is aimed at allowing banks to clear checks faster and improve fraud detection. Serif, the project's manager, predicted that check imaging will reduce check processing costs by a third. With bankwide implementation, that can add up to billions of dollars in savings.

But to Mentis' Moore, industrywide check imaging will also require an improved telecommunications architecture with bandwidth capable of processing the images and fast-packet switching and broadband technologies such as Integrated Services Digital Network. "We're still some years away from that being commercially deployed," Moore added. Case law and government regulations also have yet to catch up to the evolution of check imaging. Meanwhile, what was at first known as the electronic commerce project has been more narrowly focused on creating an infrastructure that will pass Internet commerce through existing bank payment systems. The first phase of the project, known as the Bank Internet Payments System project, will create communications links from the Internet to automated clearinghouses and money transfer systems and produce the specifications for online authentication and security for bank data. Dan Schutzer, a Citibank executive, oversees this committee.

Like the electronic check project, the emphasis is on building on existing systems. "The payments system, the ACH check clearance system — these are very complex mechanisms, and they work," Bank of Boston's Doggett said. "We don't want to compromise all these tightly controlled environments" by merely attaching the Internet to it without the proper safeguards. Using existing systems as a base "adds comfort to the people running these systems and allows us to move forward," he said.

The immensity of the issues facing the fraud prevention and control project appear to have kept it further behind most of the group's work. "We're still trying to formulate what it is we want to do," Huntington's Serif noted. "There are five, six, eight different options such as a biometric testing and evaluation center and fraud and intrusion detection." The project must also decide whether to concentrate on checks, credit cards or authentication. "We're trying to find the areas that are going to bring the most return," Serif said. ■

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